Human Capital Strategy and Planning for SPRDE-SE & PSE, DT&E, and PQM

Gordon Kranz
DUSD(A&T)/SSE Director
Technical Management Functional Leader

Outline

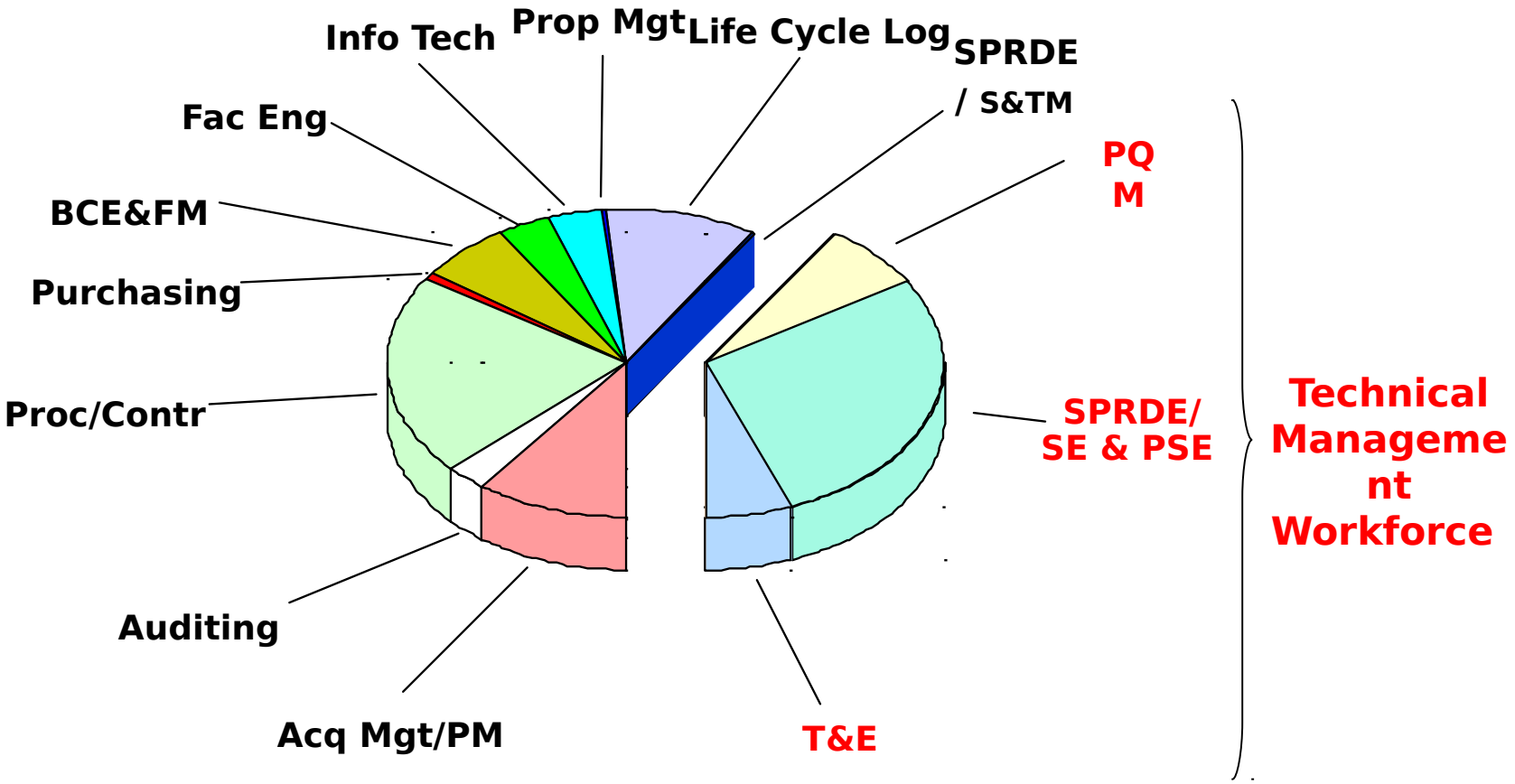
- Acquisition Workforce Challenges and Opportunities
- Technical Management vs Acquisition Population
- Systems Engineering Workforce Challenges and Opportunities
- Understanding the Systems Engineering Workforce
- Proposed Revision to Certification Framework
- Benefits
- SSE Directorate and the Technical Management Workforce
- What Else Are We Doing?
- Summary

Acquisition Workforce Challenges/Opportunities

To increase the success rate of our acquisitions programs, we need to:

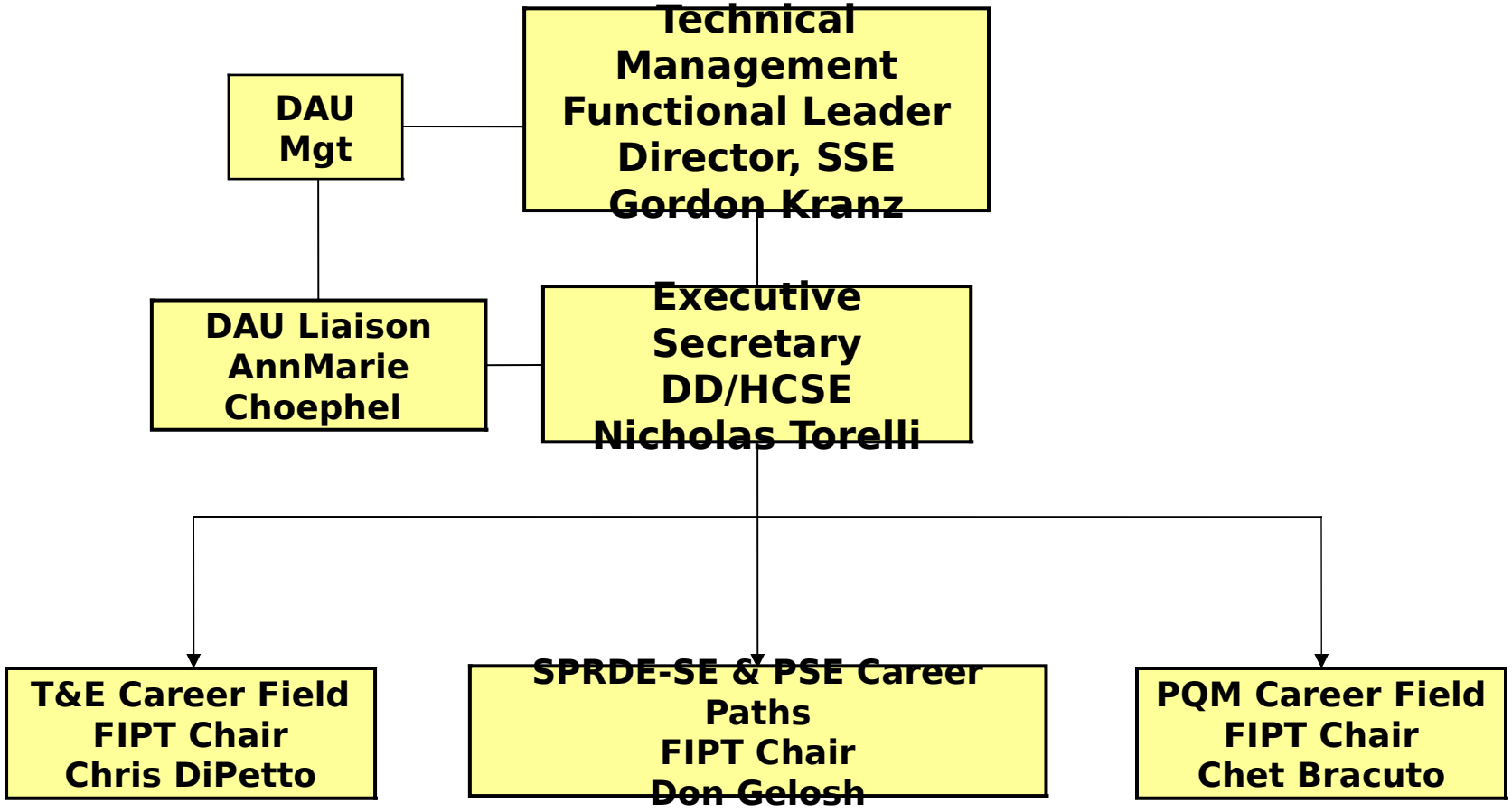
- Better equip / support / enable the workforce to perform successfully and meet all demands
- Mitigate loss of skilled / experienced workforce
- Successfully compete for, hire and retain talent
- Transfer knowledge / expertise to new generation
- Integrate acquisition workforce planning with DoD Total Force Human Capital Planning
- Strategically plan and resource human capital initiatives

Technical Management vs. Acquisition Population



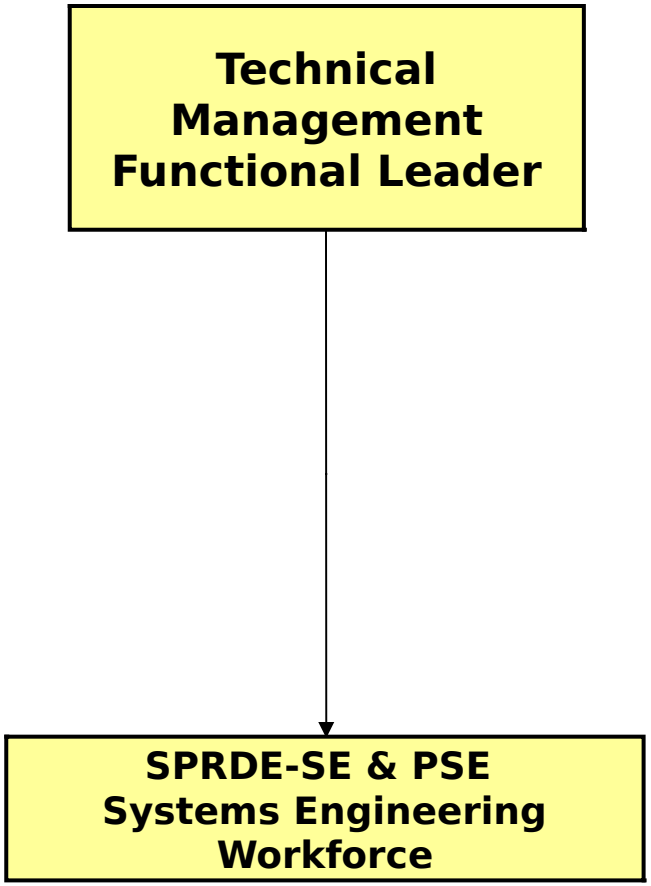
Technical Management Workforce is 41% of the total Defense Acquisition Workforce population

Technical Management Functional Leader Structure


Technical Management Functional Leader Director, SSE Gordon Kranz
DAU Mgt
DAU Liaison AnnMarie Choephel
Executive Secretary DD/HCSE Nicholas Torelli
T&E Career Field FIPT Chair Chris DiPetto
SPRDE-SE & PSE Career Paths FIPT Chair Don Gelosh
PQM Career Field FIPT Chair Chet Bracuto

FIPT = Functional Integrated Product Team

Technical Management Functional Leader Structure



SE Workforce Challenges/Opportunities

- What competencies are needed for successful performance of the Systems Engineering acquisition mission?
  - What Systems Engineering competency gaps exist?
- What workforce capacity do we need to execute the Systems Engineering acquisition mission now and in the future?
  - What is the right Systems Engineering workforce size?
  - How many Systems Engineers are needed on any particular program?
- What is our assessment of near-term and long-term Systems Engineering workforce capability risk?
  - How can we manage / mitigate this risk?
- What key information will help us make sound Systems Engineering human capital strategy / initiative decisions?
  - Need to understand the Systems Engineering Workforce

Current Systems Engineering Workforce

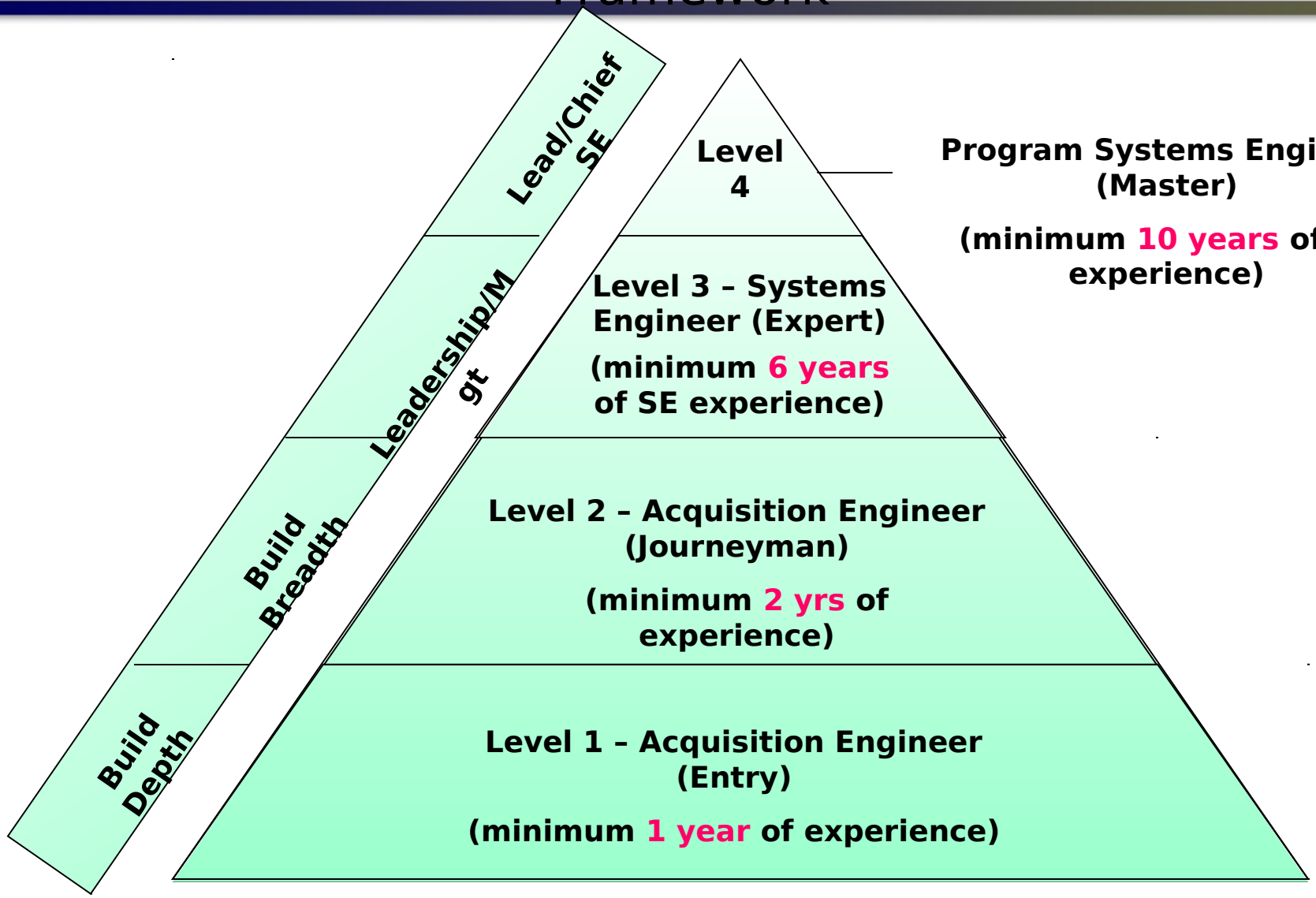
- Recent Congressional and GAO reports cite evidence of lack of disciplined systems engineering – indicates competencies / talent gaps
- SSE Systemic Root Cause Analysis efforts indicate lack of systems engineering skills and numbers in the SE workforce
- No clear picture of what competencies are available in the current SE workforce
- SE workforce members may work on a single component for entire career or may work in only one area across several programs – not systems engineering
- Many SE workforce members work in labs or research centers that indirectly support acquisition programs – not systems engineering
- Types of SE experience required for certification levels are not explicitly specified – no qualification process
- Number of years of experience for current certification levels is too low when compared to industry

Understanding the Systems Engineering Workforce

In order to properly address these challenges, we need to understand the Systems Engineering workforce by:

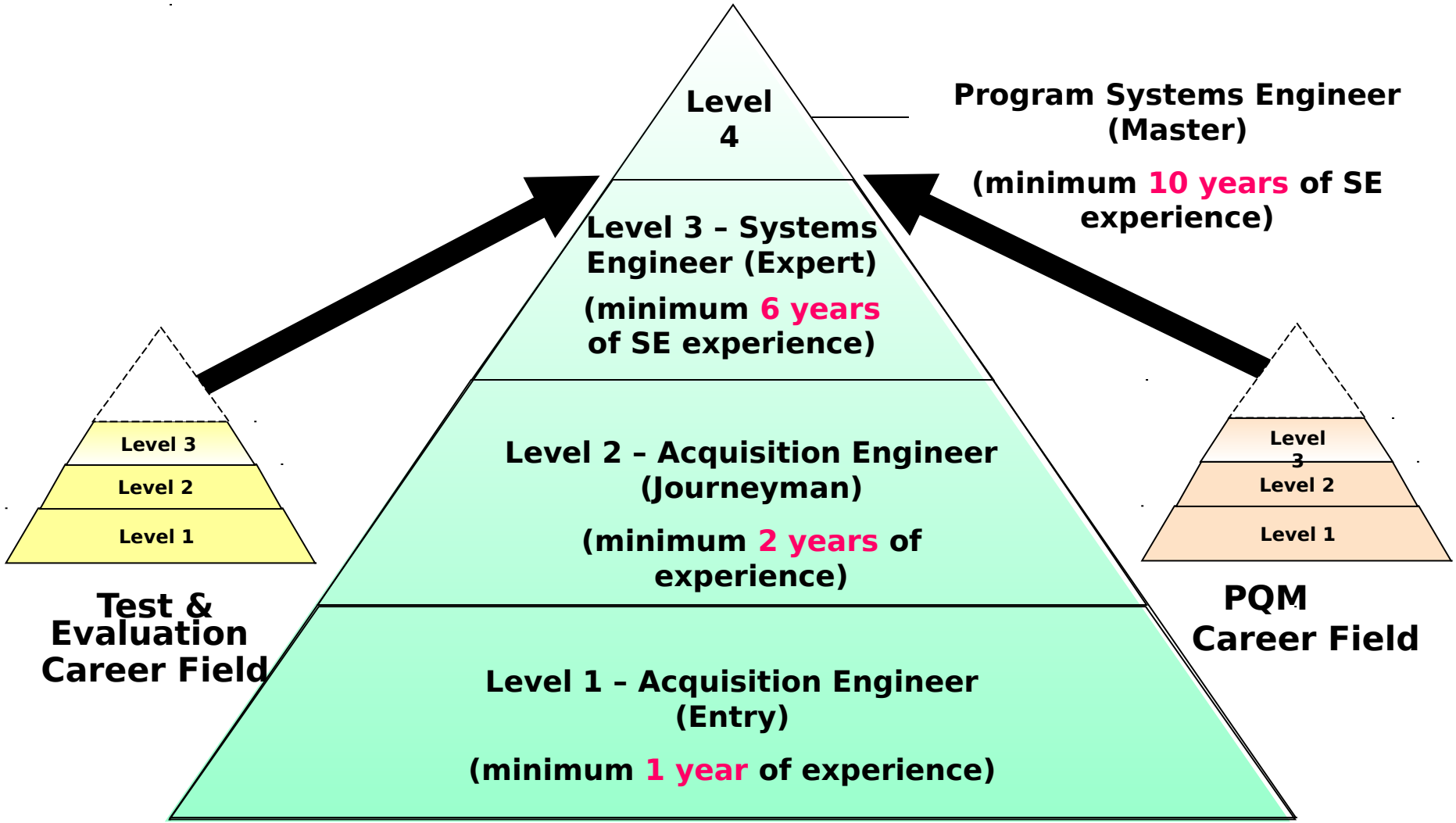
- Identifying and validating Acquisition Engineering competencies – entry and journeyman levels
- Identifying and validating Systems Engineering competencies – expert level
- Identifying all Systems Engineers who are working Program Systems Engineering tasks – master level
- Developing a single, well-defined career path that encourages and enables flexibility, professional growth and subsequent movement to Program Management positions – Position Category Description key to success

Proposed Revision to Certification Framework

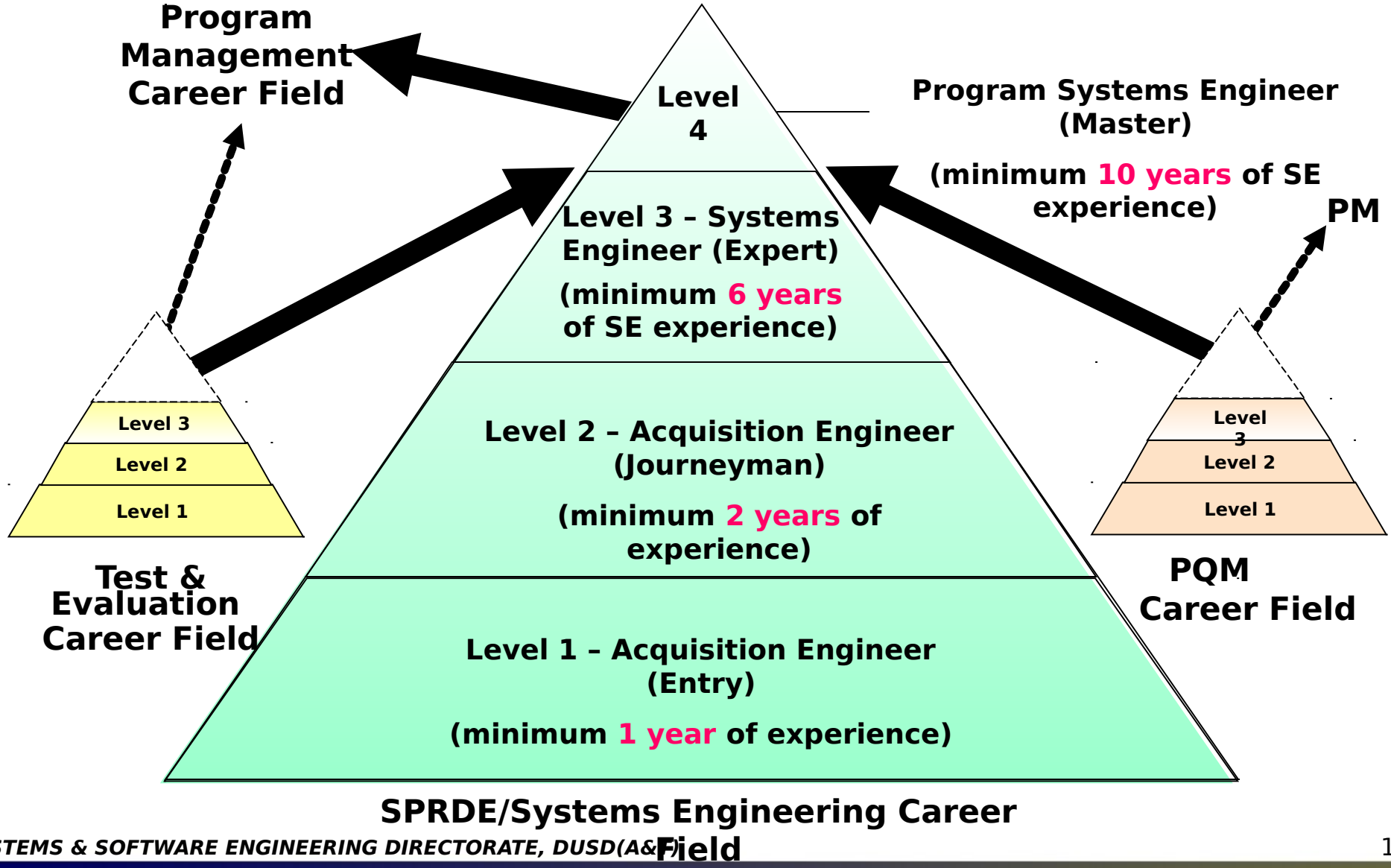

Lead/Chief SE
Leadership/Mgt
Build Breadth
Build Depth
Level 4
Program Systems Engineer (Master)
(minimum 10 years of SE experience)
Level 3 – Systems Engineer (Expert)
(minimum 6 years of SE experience)
Level 2 – Acquisition Engineer (Journeyman)
(minimum 2 yrs of experience)
Level 1 – Acquisition Engineer (Entry)
(minimum 1 year of experience)

SPRDE/Systems Engineering Career Field

Integrated Approach to SE Career Field



Professional Growth to Program Management



Benefits

We can get an accurate assessment of the total Systems Engineering workforce at the various levels of proficiency

- We can better determine who they are, where they are, and what they are doing
- We can better determine shortfalls in both competencies and workforce size at all levels across all Systems Engineering career fields
- We can better manage workforce development requirements and certification standards
- We can make better decisions about human capital strategy and initiatives for the Systems Engineering workforce
- We can help provide acquisition programs with the quantity and quality of Systems Engineers they need for success

SSE Directorate and the Technical Management Workforce

- SSE Mission is integral to supporting Technical Management workforce development
  - Establish policy, guidance, best practices, and certification standards in collaboration with academia, industry, and government communities
  - Raise awareness of the importance of effective systems engineering and drive the state-of-the-practice into program planning and execution
  - Provide technical insight to program managers / PEOs and leadership to support decision-making (through Program Support Reviews and PM / PEO Workshops and Forums)
- Systems Engineering Forum enables Component senior functional leads to vet Systems Engineering issues
- Technical Management Career Field FIPTs – collaborate with Components to enhance certification standards

SSE Goal -- Driving Technical Excellence into Programs!

SSE Commitment to a High-Performing Technical Management Workforce

- Recently established a Deputy Director for Human Capital and Specialty Engineering (HCSE)
- Human Capital Strategy and Planning responsibilities:
  - Workforce Career Field Development and Management – SPRDE/SE & PSE, T&E, PQM (and SW curriculum)
  - Workforce Health / Assessment
  - Certification Standards
  - Competency Models & Analysis

What Else Are We Doing?

- New 5000.02 technical policy and guidance – emphasizes upfront systems engineering and integrated developmental test and evaluation
- Defense Acquisition Guidebook (DAG) in progress; will provide guidance on how to implement DoDI 5000.02
  - Working with PMs / PEOs / OSD to develop and promulgate practical implementation methods and best practices
- Starting Phase III of the SE competency assessment to prepare for 100% assessment of SPRDE/SE coded workforce
- Systems Engineering Research Center established
- Leveraging closer working relationships with academia and industry through NDIA, INCOSE, and others
- Working with Components to leverage Defense Acquisition Workforce Development Funds (DAWDF) to build and strengthen Systems Engineering community through recruiting, training, and retention
- Conducting system-level assessments in support of OSD major acquisition program oversight role

Summary

- **Human Capital Planning**
  - **Build and improve Technical Management workforce competencies through collaboration with DAU, Components, and Industry / Academia**
- **Revised Certification Framework**
  - **Provide Systems Engineering workforce with proposed 4-level certification framework to meet the goal of developing Chief / Lead Systems Engineers**
- **Workforce Development**
  - **Work with Components / industry / academia to enable a high-performing Technical Management workforce**
    - **Fill competency gaps through DAWDF (Section 852) recruiting, training, and retaining**

We want to hear from you!

-- Questions?

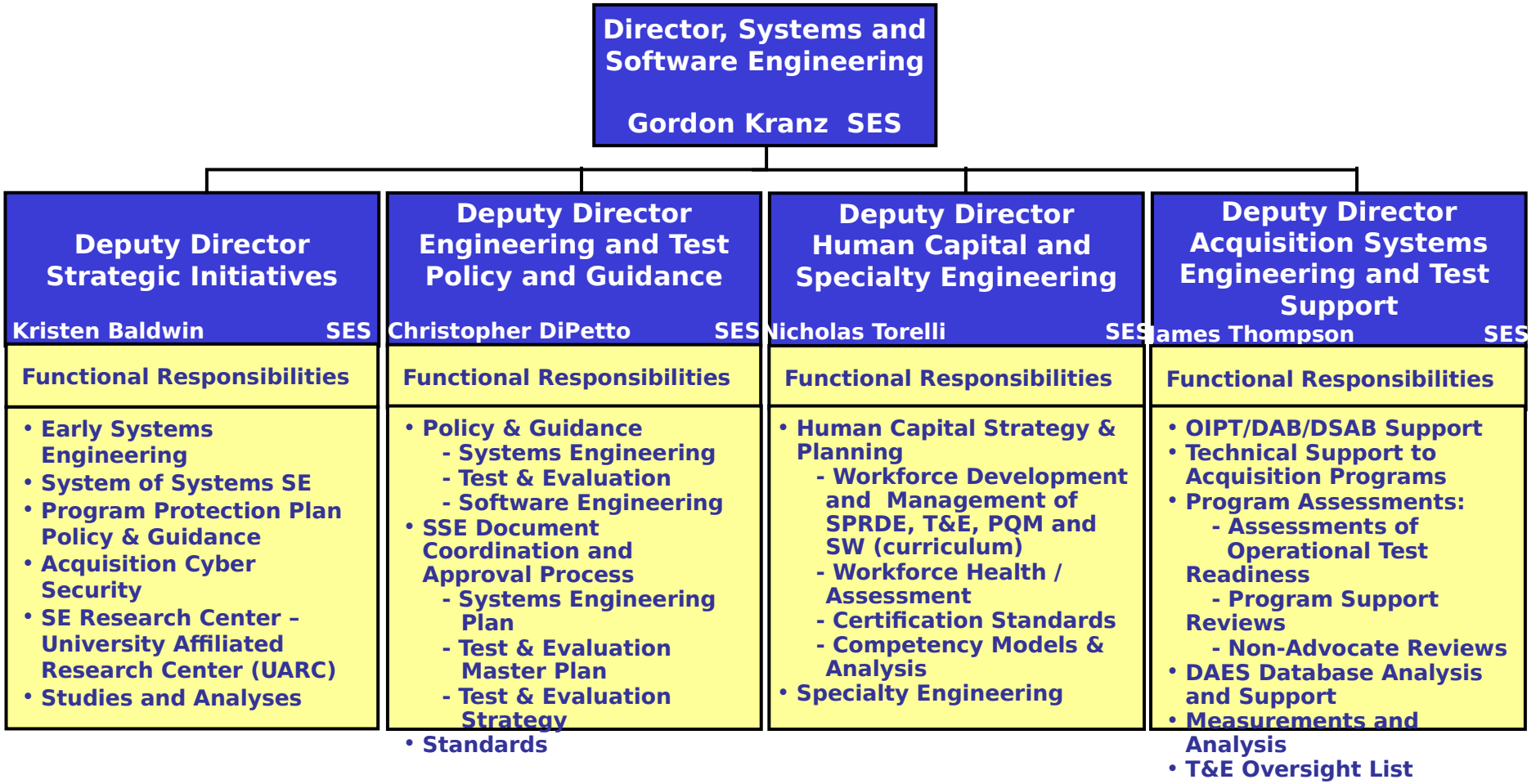
-- Thoughts?

-- Ideas?

SSE/HCSE Point of Contact: Donald.Gelosh@osd.mil; 703/695-0472

Backup Slides

SSE Organization


Director, Systems and Software Engineering
Gordon Kranz SES
Deputy Director Strategic Initiatives
Kristen Baldwin SES
Functional Responsibilities
• Early Systems Engineering
• System of Systems SE
• Program Protection Plan Policy & Guidance
• Acquisition Cyber Security
• SE Research Center – University Affiliated Research Center (UARC)
• Studies and Analyses
Deputy Director Engineering and Test Policy and Guidance
Christopher DiPetto SES
Functional Responsibilities
• Policy & Guidance
- Systems Engineering
- Test & Evaluation
- Software Engineering
• SSE Document Coordination and Approval Process
- Systems Engineering Plan
- Test & Evaluation Master Plan
- Test & Evaluation Strategy
• Standards
Deputy Director Human Capital and Specialty Engineering
Nicholas Torelli SES
Functional Responsibilities
• Human Capital Strategy & Planning
- Workforce Development and Management of SPRDE, T&E, PQM and SW (curriculum)
- Workforce Health / Assessment
- Certification Standards
- Competency Models & Analysis
• Specialty Engineering
Deputy Director Acquisition Systems Engineering and Test Support
James Thompson SES
Functional Responsibilities
• OIPT/DAB/DSAB Support
• Technical Support to Acquisition Programs
• Program Assessments:
- Assessments of Operational Test Readiness
- Program Support Reviews
- Non-Advocate Reviews
• DAES Database Analysis and Support
• Measurements and Analysis
• T&E Oversight List

Four-Level Certification Framework

New Certification Titles:

- SPRDE – Acquisition Engineer Level I
- SPRDE – Acquisition Engineer Level II
- SPRDE – Systems Engineer Level III
- SPRDE – Program Systems Engineer Level IV

Position Category Description (PCD):

- One PCD covers all four levels – provides separate description of appropriate duties for each level

Current Program Systems Engineer coded positions can automatically convert to Level IV

Systems Planning, Research, Development and Engineering

Acquisition Engineer LEVEL I

Acquisition Engineer LEVEL II

EDUCATION: Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science

TRAINING:

ACQ 101
Fundamentals of Systems Acquisition Management
(Self-paced, on-line)

SYS 101
Fundamentals of Systems Planning, Research, Development, and Engineering
(Self-paced, on-line)

EXPERIENCE: 1 year of technical experience in an acquisition position, to include government or industry equivalent, from among the following career fields/paths: SPRDE-SE/PSE, SPRDE-S&T, IT, T&E, PQM, FE, PM, or LCL

TRAINING:

ACQ 201 (Part A)
Intermediate Systems Acquisition
(Self-paced, online)

ACQ 201 (Part B)
Intermediate Systems Acquisition Management
(Classroom, 5 days)

SYS 202
Intermediate Systems Planning, Research, Development, and Engineering, Part I
(Self-paced, online)

SYS 203
Intermediate Systems Planning, Research, Development, and Engineering, Part II
(Classroom, 10 days)

CLE 003
Technical Reviews
(3 hour Continuous Learning Module)

EXPERIENCE: 2 years of technical experience in an acquisition position, to include government or industry equivalent, from among the following career fields/paths: SPRDE-SE/PSE, SPRDE-S&T, IT, T&E, PQM, FE, PM, or LCL

Systems Planning, Research, Development and Engineeri

Systems Engineer LEVEL III

Program Systems Engineer LEVEL IV

EDUCATION: Baccalaureate or graduate degree in a technical or scientific field such as engineering, physics, chemistry, biology, mathematics, operations research, engineering management, or computer science

TRAINING:

SYS 302
Technical Leadership in Systems Engineering
(Classroom, 5 days)

CLL 008
Designing for Supportability in DoD Systems
(3 hour Continuous Learning Module)

LOG 204
Configuration Management
(Self-paced, online)

One 200 or 300-level course from among the following career fields/paths: PM, T&E, PQM, LCL, BCFM, IT, or CON

EXPERIENCE: *6 years* of systems engineering experience in an acquisition position, to include government or industry equivalent.

TRAINING:

SYS 401
Executive Leadership in Program Systems Engineering, Part I
(Classroom, TBD days)

SYS 402
Executive Leadership in Program Systems Engineering, Part II
(Classroom, TBD days)

Two 200 or 300-level courses from among the following career fields/paths: PM, T&E, PQM, LCL, BCFM, IT, or CON

EXPERIENCE: *10 years* of systems engineering experience in an acquisition position, to include government or industry equivalent.

Strategic Human Capital Goals

AT&L HCSP v 3.0 Goals	
Goal 1	**Align and fully integrate with overarching DoD human capital initiatives (Competency Management)**
Goal 2	**Maintain a decentralized execution strategy that recognizes the Components' lead role and responsibility for force planning and workforce management.**
Goal 3	**Establish a comprehensive, data driven workforce analysis and decision-making capability.**
Goal 4	**Provide learning assets at the point of need to support mission-responsive human capital development.**
Goal 5	**Execute DoD AT&L Workforce Communication Plan that is owned by all DoD AT&L senior leaders (One Team, One Vision, A Common Message and Integrated Strategies.**
Goal 6	**Recruit, develop and retain a mission ready DoD AT&L workforce through comprehensive talent management.**

Key Initiatives

- Annual HCSP to Congress
- Competency Management
- Comprehensive workforce data analysis capability
- Learning Asset Integration
- Recruitment and talent management

Systems Engineering Workforce Considerations

- Past Studies and Analyses -

- **NDIA Study on Top 5 Systems Engineering Issues and National Research Council Report**
- **Systems Engineering Education and Training Summit: Additional learning and on-the-job experience required**
- **OSD Program Support Reviews**
- **Adequate qualified resources are generally not available within government and industry for allocation on major programs**
- **Need new ways to attract and develop Systems Engineers—additional learning and on-the-job experience**
- **Staffs often have insufficient training and experience to address program complexities and risks**

SE Workforce Considerations
- Congressional Concerns -

- Congressional concern about SE; cost estimating; program cost, schedule, and performance
- SASC, Senate Report 109-069, NDAA for FY 2006, Title VIII:
  - "DoD has made cuts in acquisition workforce… without giving consideration to the recruitment, training, and career-building needed to ensure the ongoing vitality of our acquisition organizations." … "We need to ensure we have the right people in the right jobs to perform the functions required to support our warfighters.
  - "Funding and requirements instability continue to drive up costs and delays the eventual fielding of new systems. The Committee is also concerned that problems with organization structure, shortfalls in acquisition workforce capabilities, and personnel instability continue to undermine the performance of major weapon systems programs."
  - "DoD should give serious consideration to longer tenures for PMs and to taking the steps needed to address shortfalls in the DoD's systems engineering capability and other critical acquisition capabilities."